

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

I. – 85. (Canceled)

86. (Currently amended) A sulfatase-producing cell wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased, wherein the cell expresses:

(i) a sulfatase, wherein the sulfatase is an activated form of an endogenous sulfatase or an exogenous sulfatase, and wherein expression of the sulfatase is increased as compared to expression in the same cell type without the activated form of the sulfatase; and

(ii) a Formylglycine Generating Enzyme, wherein the Formylglycine Generating Enzyme is an activated form of an endogenous Formylglycine Generating Enzyme of SEQ ID NO:2 or an ortholog thereof or an exogenous Formylglycine Generating Enzyme of SEQ ID NO:2 or an ortholog thereof, and wherein expression of the Formylglycine Generating Enzyme is increased as compared to expression in the same cell type without the activated form of the Formylglycine Generating Enzyme,

wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 5% as compared to the ratio in the same cell type without the Formylglycine Generating Enzyme.

87. (Previously presented) The sulfatase-producing cell of claim 86, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 10% as compared to the ratio in the same cell type without the Formylglycine Generating Enzyme.

88. (Previously presented) The sulfatase-producing cell of claim 86, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 20% as compared to the ratio in the same cell type without the Formylglycine Generating Enzyme.

89. (Previously presented) The sulfatase-producing cell of claim 86, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 50% as compared to the ratio in the same cell type without the Formylglycine Generating Enzyme.

90. (Previously presented) The sulfatase-producing cell of claim 86, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 100% as compared to the ratio in the same cell type without the Formylglycine Generating Enzyme.

91. (Withdrawn) A sulfatase produced by a sulfatase-producing cell of any one of claims 86-90.

92. (Previously presented) The sulfatase-producing cell of claim 86, wherein the cell is a prokaryotic cell.

93. (Previously presented) The sulfatase-producing cell of claim 86, wherein the cell is a eukaryotic cell.

94. (Previously presented) The sulfatase-producing cell of claim 93, wherein the eukaryotic cell is a mammalian cell.

95. (Previously presented) The sulfatase-producing cell of claim 93, wherein the eukaryotic cell is a human cell.

96. (Previously presented) The sulfatase-producing cell of claim 86, wherein the sulfatase is selected from the group consisting of Iduronate 2-Sulfatase, Sulfamidase, N-Acetylgalactosamine 6-Sulfatase, N-Acetylglucosamine 6-Sulfatase, Arylsulfatase A,

Arylsulfatase B, Arylsulfatase C, Arylsulfatase D, Arylsulfatase E, Arylsulfatase F, Arylsulfatase G, HSulf-1, HSulf-2, HSulf-3, HSulf-4, HSulf-5, and HSulf-6.

97. (Previously presented) The sulfatase-producing cell of claim 86, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises a GFR motif.

98. (Previously presented) The sulfatase-producing cell of claim 86, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises an RVXXGG(A)S motif.

99. (Previously presented) The sulfatase-producing cell of claim 86, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises a heptamer that comprises three arginine residues.

100. (Previously presented) The sulfatase-producing cell of claim 86, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises three cysteine residues.

101. (Currently amended) A sulfatase-producing cell wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased, wherein the cell expresses:

(i) a sulfatase, wherein the sulfatase is an activated form of an endogenous sulfatase or an exogenous sulfatase, and wherein expression of the sulfatase is increased as compared to expression in the same cell type without the activated form of the sulfatase; and

(ii) an activated form of an endogenous Formylglycine Generating Enzyme or an exogenous Formylglycine Generating Enzyme having:

(a) an amino acid sequence that comprises an amino acid sequence that is at least 95% identical to SEQ ID NO:2; or

(b) an amino acid sequence that is encoded by a nucleic acid that hybridizes under stringent conditions (6X SSC at 65°C) to the complement of a nucleic acid encoding SEQ ID NO:2;

wherein expression of the Formylglycine Generating Enzyme is increased as compared to expression in the same cell type without an activated form of the endogenous Formylglycine Generating Enzyme or the exogenous Formylglycine Generating Enzyme;

wherein the Formylglycine Generating Enzyme is capable of forming L-C α -formylglycine on a sulfatase; and

wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 5% as compared to the ratio in the same cell type without the activated form of the endogenous Formylglycine Generating Enzyme or the exogenous Formylglycine Generating Enzyme.

102. (Previously presented) The sulfatase-producing cell of claim 101, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 10% as compared to the ratio in the same cell type without the activated form of the endogenous Formylglycine Generating Enzyme or the exogenous Formylglycine Generating Enzyme.

103. (Previously presented) The sulfatase-producing cell of claim 101, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 20% as compared to the ratio in the same cell type without the activated form of the endogenous Formylglycine Generating Enzyme or the exogenous Formylglycine Generating Enzyme.

104. (Previously presented) The sulfatase-producing cell of claim 101, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 50% as compared to the ratio in the same cell type without the activated form of the endogenous Formylglycine Generating Enzyme or the exogenous Formylglycine Generating Enzyme.

105. (Previously presented) The sulfatase-producing cell of claim 101, wherein the ratio of active sulfatase to total sulfatase produced by the cell is increased by at least 100% as

compared to the ratio in the same cell type without the activated form of the endogenous Formylglycine Generating Enzyme or the exogenous Formylglycine Generating Enzyme.

106. (Previously presented) A sulfatase produced by a sulfatase-producing cell of claim 101.

107. (Previously presented) The sulfatase-producing cell of claim 101, wherein the cell is a prokaryotic cell.

108. (Previously presented) The sulfatase-producing cell of claim 101, wherein the cell is a eukaryotic cell.

109. (Previously presented) The sulfatase-producing cell of claim 108, wherein the eukaryotic cell is a mammalian cell.

110. (Previously presented) The sulfatase-producing cell of claim 108, wherein the eukaryotic cell is a human cell.

111. (Previously presented) The sulfatase-producing cell of claim 101, wherein the sulfatase is selected from the group consisting of Iduronate 2-Sulfatase, Sulfamidase, N-Acetylgalactosamine 6-Sulfatase, N-Acetylglucosamine 6-Sulfatase, Arylsulfatase A, Arylsulfatase B, Arylsulfatase C, Arylsulfatase D, Arylsulfatase E, Arylsulfatase F, Arylsulfatase G, HSulf-1, HSulf-2, HSulf-3, HSulf-4, HSulf-5, and HSulf-6.

112. (Previously presented) The sulfatase-producing cell of claim 101, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises a GFR motif.

113. (Previously presented) The sulfatase-producing cell of claim 101, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises an RVXXGG(A)S motif.

114. (Previously presented) The sulfatase-producing cell of claim 101, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises a heptamer that comprises three arginine residues.

115. (Previously presented) The sulfatase-producing cell of claim 101, wherein the Formylglycine Generating Enzyme comprises a subdomain 3, wherein the subdomain 3 comprises three cysteine residues.